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## Patent Abstracts of Japan

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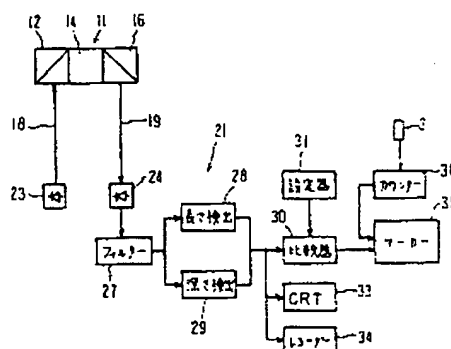
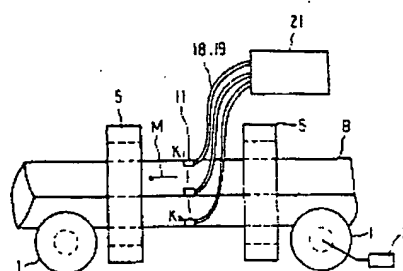
APPLICATION DATE : 18-02-88  
APPLICATION NUMBER : 63033895

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INVENTOR : MOTOYAMA MASAMI;

INT.CL. : G01N 27/83 G01R 33/032

TITLE : MAGNETIC FLAW DETECTOR FOR LONG-SIZED STEEL MATERIAL



ABSTRACT : PURPOSE: To achieve an automatic detection of a minute defect such as pinhole below 1mm, by detecting a leakage magnetic flux at a defect with a magnetooptical detection element.

CONSTITUTION: A billet B is magnetized with a magnetizing coil 5 so as to generate a line of magnetic force M along the length thereof. When there is a defect such as pinhole on the surface of the billet B or there near, a leakage flux is generated at the point thereof. At a magnetooptical detection element 11, light from an LED 23 is incident into a Faraday element 14 through a polarizer 12 and a polarization plane of the light receives a rotation proportional to the intensity of a magnetic field as the light is passing through the Faraday element 14. The light is converted with an analyzer 16 into intensity of light corresponding to an angle of the rotation. Signal of the intensity is converted with a photodiode 24 into an electrical signal to detect the length and depth of the defect. When a detection value exceeds an allowable level, a defect part of the billet B is marked by a marker 38.

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